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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,250	10/08/2004	Nigel-Philip Cox	2002P00676WOUS	8761

7590 04/05/2006

Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
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EXAMINER	
SAVAGE, JASON L	

ART UNIT	PAPER NUMBER
1775	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/511,250	COX ET AL.	
	Examiner	Art Unit	
	Jason L. Savage	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-18, 26-27* is/are rejected.

7)☒ Claim(s) *19-25 and 28-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim recites that the material layers 'collectively form a ceramic thermal barrier coating'; however, the Examiner was unable to locate the basis in the specification for the claim limitation wherein the thermal barrier coating is ceramic which is applied and reacted with the masking layer. As such the claim limitation is considered new matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13-18 and 26-27 are rejected under 35 U.S.C. 103(a) as obvious over Wheat et al. (US 6,253,441) and evidenced by the present Application.

Wheat teaches a turbine component such as a blade or vane comprising a masking layer arranged on a portion of the component (col. 3, ln. 14-39). Wheat further teaches that in addition to the mask material layers a coating material layer such as a layer of aluminum is arranged on the component (col. 5, ln. 57-67).

Wheat is silent to the limitation that the material layer arranged on the component chemically reacts with the masking layer, however it is the position of the Examiner that such a reaction would have been inherent particularly given the methods of deposition recited (col. 5, ln. 55 – col. 6, ln. 4). Regarding the limitation that a water-soluble layer is formed by the reaction, Wheat teaches that the mask layer may be carbon (col. 4, ln. 36-55). As was disclosed by Applicant in paragraph [0036] of the instant Application, an aluminum and carbon reaction product is water-soluble.

Wheat is also silent to there being layer arranged on the component comprise a plurality of layers that chemically react with the masking layer. However, absent a teaching of the criticality or showing of unexpected results from the arranged layers comprising multiple layers as opposed to a single layer, it is viewed as a design choice that would not provide a patentable distinction over the prior art. It would have been within the purview of one of ordinary skill in the art to have recognized that any number of material layers could be formed on the component with a reasonable expectation of success of producing a gas turbine component exhibiting desirable properties.

Regarding the limitation that one of the material layers applied to and reacted with the masking layer being a thermal barrier coating, the coating of Wheat would act as a barrier to heat to some extent and as such, meet the limitation of being a thermal

barrier coating layer. Wheat further teaches that other materials may be applied including organic, inorganic/ceramic and metal coatings (col. 5, ln. 44-47) which would also meet the limitation of being thermal barrier coatings.

Regarding claim 14, Wheat teaches the turbine may be a blade or vane (col. 3, ln. 14-15).

Regarding claim 15, although Wheat is silent to the coating materials reacting with the masking layer, it does teach that a wide variety of materials can be applied as coatings including ceramic materials (col. 5, ln. 44-47).

Regarding claim 16, although White does not explicitly recite the aluminum coating is a bond coat, it would meet the claim limitation of being a bond coat (col. 47-67).

Regarding claim 17, White teaches that carbon is arranged on the outer surface of the masking layer (col. 4, ln. 36-55).

Regarding claim 18, the reaction between aluminum and carbon would provide a ceramic layer.

Regarding claim 26, Although White does not teach the masking layer is a gradient layer, it does teach that the mask may comprise several material layers **38, 44, 46** (Figures 2). Absent a teaching of the criticality or showing of unexpected results of the mask layer being a gradient layer, it would not provide a patentable distinction over the prior art.

Allowable Subject Matter

Claim 19-25 and 28-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art teaches turbine components comprising masking layers arranged on the surface of the component wherein additional layers are subsequently formed thereon which react with the masking layers. The prior art teaches masking coatings form reaction products that are removable by chemical or mechanical means and other masking coatings that do not react with the subsequent coated layers.

The prior art of Wheat (US 6,253,441) additionally teaches a masking layer containing carbon which is subsequently coated with aluminum. As was noted in the instant Application, the reaction product from aluminum and carbon is water-soluble and this Wheat is deemed to teach a water-soluble formed layer on the component.

The prior art further teaches a three layer masking structure, however it does not teach or suggest that the second layer is a gradient sub-layer or that the masking layers comprise the claimed materials.

Response to Arguments

Applicant's arguments with respect to claims 19-32 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that since the previously indicated allowable subject matter of a thermal barrier coating layer being applied to the masking layer and a portion thereof chemically reacting was added in amended claim 13, the claims should be allowable.

However, upon further review, it was noted that no definition for a thermal barrier coating has been provided. As such, any coating which would provide some form of barrier to heat would meet the claim limitation. Furthermore, upon review of Applicant's specification, the only coating layer material taught to react with the mask layer is aluminum (paragraphs [0035-0036] in the substitute specification). Since Wheat also teaches a coating of aluminum, it would be considered to be as much of a thermal barrier coating as that claimed by Applicant. Wheat further teaches that other materials for the coating layers may be applied including organic, inorganic/ceramic and metal coatings (col. 5, ln. 44-47). As such, the prior indication of the allowability of the limitation that a thermal barrier coating is applied and reacted with the masking layer is withdrawn.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Savage
4-2-06

JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
4/3/06